

U.S. Patent Application Serial No. 10/520,280
Amendment filed July 12, 2007
Reply to OA dated March 12, 2007

REMARKS

Claims 1- 4 are pending in this application. Claims 1-4 stand rejected. Claim 1 has been amended.

Claim Rejections under 35 USC §102

Claims 1-4 are rejected under 35 USC §102 (b) as being unpatentable by Namba et al. (US patent number 5,796,704).

The present invention is a disk playback device having a laser drive circuit (6) which can feed a drive signal to an optical head (5). The laser drive circuit (6) is also capable of adjusting the power of a laser beam irradiated by the optical head (5). Further, a control circuit (7) is used to detect the error rate of a reproduction signal and controlling operation of the laser drive circuit (6). The control circuit (7) repeatedly retrieves one boundary value of two boundary values. An error rate is determined to be a prescribed value or in the vicinity of the prescribed value and the control circuit (7) calculates an optimum reproduction power based on the one boundary value retrieved. The control circuit (7) then retrieves a new boundary value based on a boundary value obtained from a previous optimum reproduction power calculation. Thus, in the reproduction power adjustment processing because the retrieval of the new (lower) boundary value ($Prmin_2$) is based on the previous value ($Prmin_1$),which is closer to the new lower boundary value ($Prmin_2$) than the currently set reproduction power (P_1), the period of time needed for the retrieval of the lower boundary value is

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shortened. Therefore a period of time taken for a calculation of an optimum reproduction power is shortened.

Namba et al. describes an optical disk in a control module (30) which controls the writing, reading, and erasing operations. A light emitting power control module (38) controls a drive current of the laser diode (22) through a laser driving circuit (64) so as to have a specific light emitting power predetermined for each of the above operations. Thus, the writing, reading and erasing operations each generate a laser beam of specific light emitting power. On the basis of an instruction from the whole control module (30), a reproduction power calibrating module (74) performs a calibrating operation to determine an optimum reproducing laser power which is used when reproducing the optical disk.

However, as shown in Figure 8 of Namba et al., the reproduction output level is again read in step S3. While the processes in steps S3 to S5 are repeated, when the preceding reproduction output level is equal to or lower than the present reproduction output level in step S4, step S6 follows. The predetermined value W_c , for example, 1.0 mW is added to the value of the reproducing power W at that time, thereby calculating the optimum reproducing laser power.

However, in the present invention the new (lower) boundary value ($Prmin_2$) is based on the previous value ($Prmin_1$), which is closer to the new lower boundary value ($Prmin_2$) than the currently set reproduction power (P_1). Of course the previous value ($Prmin_1$) is determined by adjusting the reproduction power Pr until the error rate is not more than a desired value. While in Nanba et al. in step S5 of Figure 8, the reproducing power W is increased until the preceding level is not less than

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or equal to the present level. Then and only then is the optimum reproducing power calculated in step 6 of Figure 8. However, Nanba's step S5 is not required in the present invention when determining the new lower boundary value ($Prmin_2$) since it is based on the previous value ($Prmin_1$), thereby saving time.

To more clearly express this inventive concept, claim 1 has been amended to indicate that the new boundary value is solely based on a boundary value obtained by previous optimizing process and not a current reproduction power level. Thereby, the present invention is characterized in that, in the reproduction laser power optimizing process, a new (lower) boundary value is retrieved based on a (lower) boundary value obtained by a previous optimizing process, i.e., in that the starting point in retrieving a new (lower) boundary value is a (lower) boundary value obtained by a previous optimizing process. While in contrast, Namba et al. only describes obtaining a lower limit of the reproduction laser power and adding a predetermined value W_c to the lower limit, thereby determining the optimum reproduction power. It does not use any process of retrieving a new (lower) boundary value. Namba et al. only uses the new (lower boundary value as the current reproduction laser power. Therefore, amended independent claim 1 patentably distinguishes over the prior art of record. Therefore, withdrawal of the rejection of claims 1-4 under 35 USC §102 (b) as being unpatentable by Namba et al. (US patent number 5,796,704) is respectfully requested.

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Conclusion

In view of the aforementioned amendments and accompanying remarks, claims, as amended, are in condition for allowance, which action, at an early date, is requested.

If, for any reason, it is felt that this application is not now in condition for allowance, the Examiner is requested to contact the applicant's undersigned attorney at the telephone number indicated below to arrange for an interview to expedite the disposition of this case.

In the event that this paper is not timely filed, the applicant respectfully petitions for an appropriate extension of time. Please charge any fees for such an extension of time and any other fees which may be due with respect to this paper, to Deposit Account No. 01-2340.

Respectfully submitted,

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PATENT TRADEMARK OFFICE

Enclosure: Petition for Extension of Time

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